

## STREET CATERING: SOCIO-ECONOMIC EFFECTS AND HEALTH RISKS IN THE CITY OF DJOUGOU (NORTH-WEST BENIN)

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### ABSTRACT

*The risk of serious food poisoning associated with street foods remains a threat in many countries around the world. In spite of these risks, people are looking for cheaper food. The objective of this research is to understand the socio-economic importance of street food and the related health risks in the town of Djougou.*

*The methodological approach adopted is based on documentary research and investigations in the real environment. Within the framework of this research, 250 people (consumers, vendors, health workers, local authorities and resource persons) were surveyed. The results were analyzed using the SWOT model.*

*This research shows that the town of Djougou has several street food outlets. Ninety-seven percent of this activity is run by women between the ages of 20 and 50. The price of the dishes varies between 300 and 1000 fcfa. This activity remains a potential source of income for these actors. Thus, the average income of the women restaurant owners varies between 2500 and 4500 Fcfa. The income from this activity is used for various purposes by the restaurant owners. In addition, the lack of hygiene, poor cooking conditions and lack of food protection lead to health risks for consumers. Faced with this situation, it is urgent that appropriate measures be considered in order to reduce the health risks related to the consumption of street foods and to guarantee the health of consumers.*

**KEYWORDS:** *Town of Djougou, Street Food, Socioeconomic Impact, Health Risks, Measures*

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### INTRODUCTION

Health and food hygiene issues are paramount (P. C. A. Vonan and J. A. Agobé, 2015, p193). Indeed, food security in terms of hygiene and health remains precarious in Africa (T. J. Compaoré et al, 2008, p9). Urban demographic growth is accompanied by an increase in food consumption outside the home. Street food is nowadays a new food mode in full expansion in the urban centers of our countries (D. Lokangila Molisho, 2013, p 19). Indeed, the expansion of African cities and the changes in the mode of eating due to the activity of the populations have increased in recent years, a proliferation of street food outlets. Street food has developed considerably in recent years. It allows households to take charge of their food supply by buying food prepared outside the home. To this end, for households living in difficult and precarious conditions, it is less expensive to buy a dish for the group than to prepare it at home (F. Kouessi and A. Metonou, 2016, p. 9).

Street food is a social reality in Benin. It is of major socio-economic importance for both the restaurant owners and the customers. This sector has taken on a very special dimension in cities where rapid urbanization and economic difficulties have favored the increase in the number of street food vendors (F. Kouessi and A. Metonou, 2016, p. 10). It is a solution to many problems and food needs of urban dwellers. However, the lack of hygienic conditions in the marketing of these foodstuffs constitutes a threat to the health of the populations. Indeed, street food does not fully play its nutritional role since it is a source of contamination due to poor hygienic practices during food handling.

The town of Djougou is not immune to this street food phenomenon. Food sold along the streets and in public places represents a significant part of food consumption in this city. The populations of this city do not take care of their household prefer to eat in these restaurants at lower cost. Socio-economic elements contribute to the growth of street food in Djougou. These include the monetary poverty of households and the presence of migrants living alone in precarious situations or with low incomes.

The city of Djougou is characterized by insufficient conditions of drinking water supply and household waste disposal and where the prevalence rate of the cholera epidemic is great (C. Lègba et al, 2017, p). Similarly, this city is characterized by precarious hygiene and low coverage of sanitation facilities at all levels.

In the city of Djougou, the use of street food has progressively changed from a habit to a cultural behaviour, which has an impact on the health of the population. The high rate of recourse to street food is not without repercussions on the health of the population in this period of the covid 19 pandemic.

Despite its importance, street food poses several health problems due to food-borne illnesses in this Islamic city.

## **MATERIALS AND METHODS**

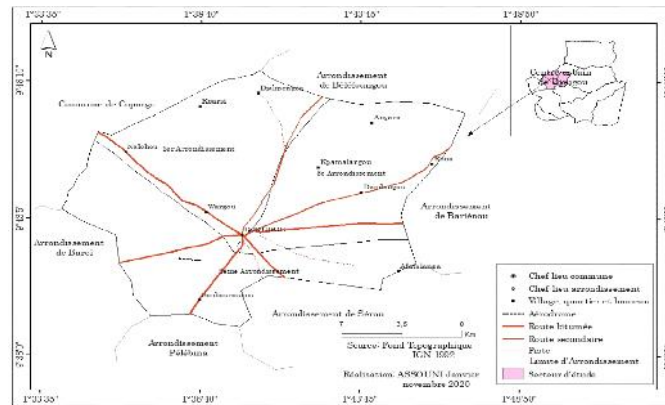
### **Collection Tools and Techniques**

#### **Interview Guide for the Socio-Economic Survey**

- Survey sheet for the target population survey ;
- Digital camera for taking illustrative pictures ;
- GPS for geographic coordinates.

### **Presentation of the Study Area**

The city of Djougou is located in the northwest of Benin. It is located between 9° 39' and 9°50' North latitude on the one hand and 1° 34' and 1° 47' East longitude on the other hand. It covers an area of 234 km<sup>2</sup>. It is limited to the north by the district of Belefoungou, to the west by the district of Baréi, to the south by the districts of Sérou and Pélébina and to the east by the district of Bariénou. The town of Djougou, the chief town of the department and the commune, is located about 450 km from Cotonou (Figure 1).



**Figure 1: Geographical Location of the Town of Djougou.**

## Methods

The methodological approach adopted is based on documentary research and field surveys.

## Data Collected

### The Data Collected in the Context of this Article are

- Socio-demographic characteristics of sellers ;
- Street food outlets ;
- Food practices ;
- The dishes offered ;
- Socio-demographic characteristics of consumers and where they come from;
- The number of meals per day ;
- Frequency of consumption of street foods ;
- Average Earnings of sellers ;
- Diseases related to street food consumption ;
- The causes of disease ;
- Ways to control street food related diseases.

## Sampling

The sample size is determined by the formula  $n = Z^2 \times p \times (1-p) / e^2$

where n is the sample size; Z is a constant equal to 1.96 at the 95 % confidence level; p is the proportion of households that have adopted street food as a food source in relation to the total number of households in the town of Djougou (about 40 %); i is the margin of error set at 6 %.

$$n = (1.96)^2 \times (0.4) \times (0.6) / (0.06)^2 = 144.06 \approx 145$$

= 145 households surveyed

In each household, one person is investigated.

In addition to these consumers, there were 30 street food vendors, 15 assistants, 3 local elected officials, 1 agent from the economic affairs department of the Djougou town hall, 2 health agents, the departmental director of health and 3 resource persons. In total, 200 people were surveyed in the framework of this research.

### Data Processing

The collected data, once processed, were treated and analyzed using SPSS 17 software. A documentary analysis was used to complete the information collected from the actors. Tables and figures were produced with Excel spreadsheets from the quantitative data. For the qualitative data, we cross-checked the different points of view from the interviews. The analysis of the results is done with the help of the SWOT model.

## RESULTS

### Street Food Outlets

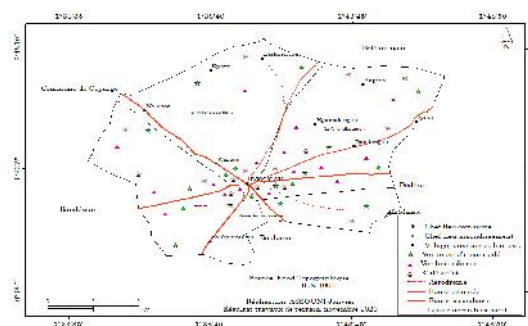
In the city, there are 48 street restaurants, namely 18 yam restaurants, 15 rice restaurants and 15 cafeterias. Figure 2 shows the location of these street restaurants in Djougou.

Figure 2 shows commune of Djougou, there are a wide variety of street food sales outlets in the urban districts. These different sales points are all located along asphalt roads and main roads. They are located in busy places such as markets and bus stations, especially in areas of high economic activity and high population concentrations. This is the case for the rice sellers located along an asphalt road in the south-west of the town, as well as for the crushed yam and rice fat sellers located along asphalt roads in the north-east and north-west of the town.

During the surveys, we generally identified three types of street restaurants in the city of Djougou with different dishes.

The restaurant business is very scattered. This trade is carried out both in the central (urban) districts and on the outskirts. This multiplication of sales sites is explained by the fact that 97 % of street food vendors do not rent their sales sites. These sales sites can be found in places such as markets, bus stations, along major roads and public squares. Thus, all these sites constitute significant sales points because of the movement of people in these different corners all day long. Figure 3 and 4 show street restaurants in the city of Djougou.

Figure 3 and 4 show street restaurants in the city of Djougou. Photo 1 shows a motorcycle taxi driver in a street restaurant at the Lémane Mandè bus station waiting to be served his meal. Photo 2 shows a customer at a street restaurant in front of the Taïfa market in the city of Djougou.



**Figure 2: Situation of Street Restaurants in the City of Djougou.**



**Figure 3: Street Restaurant Next to the Lémame Mandè Bus Station in Djougou 2.**

**Shot: Assoumanou, March 2016.**



**Figure 4: Street Restaurant in Front of the Taifa Market in Djougou 1.**

**Shot: Assoumanou, March 2016.**

### **Types of Street Restaurants and Dishes Offered in Djougou**

Table 1 presents the types of restaurants encountered in the city of Djougou.

According to the data in Table 1, there are three types of restaurants in the town of Djougou: fixed restaurants, open-air restaurants and itinerant restaurants. The fixed restaurants are street restaurants in a fixed and well erected location. They are cafeterias, well built street restaurants. Open-air restaurants are unbuilt eating places, restaurants in the open air or under trees. Mobile restaurants are street vendors selling food on the side of the road. Here, it is the vendor who moves towards the customers.

The dishes offered to the populations of the city of Djougou are varied. The most popular dishes are rice, pounded yam, corn paste, cossette paste, chips, spaghetti, local dishes such as *wassa-wassa* (African cous-cous), *akassa*, *toubani* (paste obtained from the mixture of yam cossette flour and bean flour).

**Table 1: Different Types of Street Restaurants and their Dishes**

<b>Types of Restaurants</b>	<b>Percentage</b>	<b>Food Sold</b>
Fixed restaurants	25 %	Crushed yam, yam pod paste, corn paste, rice + beans, fish, meat, cheese.
Open air restaurants	45 %	Waké, wassa-wassa, toubani, akassa, rice, boiled + bathed, dambou, smoked meat, rice paste.
Mobile restaurants	30 %	Porridge, toubani, fourah, smoked meat, wassawassa, rice

**Source:** Field surveys, November 2016

### **Socio-Demographic Aspect of Restaurant Owners in Djougou**

Ninety-seven per cent of this activity is carried out by women between the ages of 20 and 50. According to the results of the surveys, the high number of women involved in street food sales reflects their desire to provide for their families' food needs and to be independent of their husbands, since, according to 95 per cent of the women surveyed, nothing should be expected of their husbands; the men of Djougou do not take charge of the household. This is the woman's responsibility. As for the level of education of the women vendors or restaurant owners, 88 % are not literate in French, 12 % have primary education.

Table 2 highlights the age range of the conservators.

Table 2 shows Eight percent of street food vendors are between the ages of 20 and 25. 72 % of street food vendors are between the ages of 25 and 45. Restaurateurs with an age range of 45 to over 60 years old represent 20 %.

With regard to the marital status of the restaurant owners, according to the field surveys, married people (56 %) are more numerous because this allows them to provide for their families, while divorced people (35 %) and single people (9 %) generally look after their own needs while fighting unemployment.

**Table 2: Age Range of Restaurant Owners Surveyed**

Age Range	Percentage (%)
20-25	8
25-30	12
30-35	15
35-40	23
40- 45	22
45- 50	17
50 to More	03
<b>Total</b>	<b>100</b>

**Source:** Field survey, November 2016

### **Socio-Demographic Aspect of Street Food Consumers in Djougou**

Street food consumers include artisans, traders, students, civil servants and transporters. According to the results of the field surveys, 60 % of street food consumers are single, particularly men. Married men account for 28 % of street food consumers because the Jugaese do not give money for household food.

### **Socio-Economic Impacts of Street Food Sales in Djougou**

All of the consumers surveyed mentioned their low purchasing power and the affordable price of meals as the main reasons for consuming street food. This is reflected in the words of one respondent who said, *"When you don't have enough money, you eat what you find and not what you want."* According to the results of the surveys, the price of the dishes varies between 300 and 1000 FCFA. 45 % of the consumers surveyed said they had eaten street food three times a day; 37 % ate it twice and the rest (18 %) once a day.

The number of shoppers varies according to the type of street food restaurant, the time of year and the quantity of food cooked. For example, during the month of Lent, sales decrease considerably because 95 % of the customers are Muslim. During this period, the number of customers can vary between 15 and 30 per day per street restaurant. Outside this period, the number of customers can reach an average of 75 to 100 per day per street restaurant.

For all the vendors, this activity remains a potential source of income for these actors. Thus, the average daily income of women restorers varies between 2,500 and 4,500 CFA francs. These restorers use paid labour. According to the results of the field surveys, the helpers earn between 15,000 and 20,000 FCFA per month.

The income from this activity is used for various purposes by the women restaurateurs. Through this activity, these women are able to count themselves as direct actors in the life of their households. Thus, thanks to the income from this activity, they claim to have financial autonomy, enabling them to use the earnings to do all their shopping for the daily meal without necessarily waiting for their husbands. These women also manage to contribute to the payment of their children's school fees, in a word to take care of the small expenses in their respective homes, confided to us 72 % of the women street food vendors surveyed. They also organise tontines (daily or monthly) based on the earnings from this activity. This allows them to invest in several other sectors of activity, particularly commercial ones, such as the sale of various products (pasta, milk, canned tomatoes, sugar, etc.). For 75 % of the respondents, this type of food has become a phenomenon of modern societies and enables more than 80 % of the

urban population to meet their nutritional needs. It generates income that enables many households to meet their expenses and creates jobs for many people without qualifications or schooling.

### **Health Risks of Street Food**

Although street food is a source of low-cost food, satisfies the nutritional needs of the people of Djougou and generates income, it is a source of health risks.

According to the consumers surveyed, cases of food poisoning caused by street food have been reported. For them, the cause of these cases of food poisoning is the lack of hygiene and sanitation in the places where street food is sold. For these consumers, the cleaning of dishes and sales places is often done by helpers even if the sanitary conditions required for this type of operation are not followed.

According to the consumers, the non-respect of basic hygiene rules constitutes a public health problem. In addition, they note the poor cleaning of food, especially fresh vegetables eaten raw, and of cooking utensils, the poor storage conditions of unsold food, the sale of food near household garbage, and the exposure of food to flies as other causes of health risks related to street food. Photo 2 shows a restaurant near a pile of garbage in Djougou.

Figure 5 shows a street restaurant near a pile of household waste in the Yaroua district of Djougou.

According to the doctor, street food is a source of serious hygiene and unsanitary conditions due to the failure to observe the basic rules of hygiene in the preparation, sale and consumption of the food sold. Thus, the lack of hygiene affects the sale of many street foods such as fish, butchered meat and poultry, market garden produce, cereal meal, roast pigs, foods sold next to poorly maintained public latrines or in an unsanitary environment.

Thus, according to him, the multiplication of street restaurants can become a real threat to public health because of the laxity of the authorities in the process of control of these sites which trample on the rules of food hygiene. This is evidenced by the failure to comply with these rules during preparation, with the use of non-drinking water in the form of various drinks or ice cubes, improper or inadequately cleaned dishes, the use of poor quality raw materials and ingredients that expose consumers to several food-borne diseases such as diarrhea, cholera, enteric fever (typhoid), skin diseases, food poisoning, intestinal worms etc.

For the departmental director of health of Donga, which includes the city of Djougou, cholera epidemics are legion in the city and are caused by contaminated food. And diarrhoeal diseases rank first on the list of reasons for consultation in our health facilities in Djougou.

According to him, the cases of food poisoning that have occurred in the city in recent years show the extent of the danger. These cases of contamination, attributable to poor hygienic practices from the preparation to consumption of food, the substitution by vendors of ingredients of fair quality or cheap to expensive ingredients, the use of food additives banned, the common use of makeshift packaging (paper bags cement, newspaper papers kept in dubious places, biodegradable materials for packaging food instead of the polythene bags currently used, the unhygienic quality of the water used for multiple food handling, washing up and drinking...have cost the lives of many people and left serious after-effects on others who were spared.

The use of raw materials and ingredients of poor quality or decomposition, non-potable water in the form of various beverages.



The risk of individual food poisoning is a constant threat to street food consumers.

Regular consumption of snacks sold in street food restaurants could cause chronic diseases such as obesity, diabetes, heart disease as these foods are high in sugar. Many of these street foods are sources of inflammatory diseases, cancer and food poisoning. Most of the vendors fry the food in overused oil, which causes health disasters and heart diseases and diabetes.

Faced with the dangers incurred by the population in resorting to street food, consumers and vendors must become aware in order to avoid the worst, as everyone must feel concerned first and foremost about their own health. The Department of Hygiene and Basic Sanitation must work to train and retrain vendors in order to help them improve their practices and attitudes in terms of food hygiene, and to strengthen food safety and quality control. It should conduct long-term hygiene awareness campaigns for street food vendors and consumers.



**Figure 5: Street Restaurant near a Heap of Household Waste in Yaroua (Djoungou).**

**Shot: Assoumanou, March 2016.**

## DISCUSSIONS

Street food is a new and growing food mode today. This result confirms the work of Y. BertonOfouémé (2007, p323) who believes that street food is marked by a dynamism attributed to the combination of various geographical, economic and cultural factors.

The phenomenon of food consumption is essentially a question of economic access to food, i.e. in terms of income and therefore purchasing power. Thus, street food is a profitable activity for vendors whose income increases relatively. This result confirms the work of T. J. Compaoré et al, (2008, p10) who believe that this mode of food, which has become a phenomenon of modern societies, allows more than 80 % of urban populations to satisfy their nutritional needs, generates income allowing many households to meet their expenses and creates jobs for many people without qualifications or schooling

The consumption of street food affects the health of the populations. This result confirms the work of M. G. M. Aholou and L. R. Mongbo (2019, p352) who believe that the food situation in African cities in sub-Saharan Africa remains worrying despite the appearance of well-being it presents. It also corroborates the results obtained by Y. BertonOfouémé (2007, p335) who thinks that the non-respect of basic hygiene standards constitutes a public health problem and harms restaurant owners. This result reinforces those of T. J. Compaoré et al, (2008, p8) for whom microbiological analyses carried out on street foods have shown an insufficiency of microbiological quality, increasing the risks of toxi-infections and who believe that food-borne diseases constitute the third cause of mortality after AIDS and malaria.



Faced with this situation, street food vendors need to be sensitized on hygiene issues. This result is similar to those of T. J. Compaoré *et al.*, (2008, p4) for whom street food is unavoidable in the current development scheme and the sanitary problems it generates must be resolved. The resolution of these problems constitutes a major challenge for all actors. Thus, efforts of policy makers, municipal authorities, vendors and consumers must be combined to support the improvement of services offered by this development sector.

## CONCLUSIONS

Street food is a dynamic sector of activity in the town of Djougou. Ninety per cent of it is run by women and it reaches all the population of the town, from all socio-professional categories. This activity provides food at affordable prices. It is a source of income for the restaurant owners. Although it is a source of income, this activity is also a source of illness due to poor cooking, unsanitary conditions, and the sale of food that is poorly preserved or unfit for consumption. It will be necessary to improve the working conditions of restaurant owners and the hygienic quality of food to promote consumer health. Health education of consumers and vendors is essential.

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